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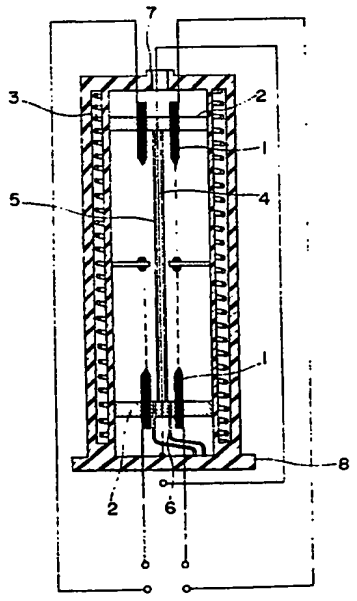
(54) **Apparatus for improving the quality of light oil.**

(57) In an apparatus for improving the quality of light oil, electrodes (1), a coil (3) and a heating wire (4) are activated to generate a discharge plasma beam, while on the other hand a mixture of light fuel and hydrogen is discharged from nozzles (6) into the interior of the apparatus. Then, the C-C bond in the constituent part of the light oil is broken up by the atomic discharge, at the same time the hydrogen is added to the above broken up part, and thus the light oil is converted into a fuel worthy of being supplied to any gasoline internal-combustion engine.



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Apparatus for improving the quality of light oil

The present invention relates to an apparatus for improving the quality of light oil. The object of this invention is to provide such a type of apparatus for improving the quality of light oil that will be interposed in the fuel feed route of a gasoline internal combustion engine for use in automobiles, and that is capable of making the gasoline internal combustion engine drive while improving the quality of light oil without difficulty by the mere use of storage batteries mounted on automobile as the one and only electric source.

There is not anyhow in existence as yet a kind of apparatus for making a gasoline internal combustion engine drive by using light oil as a motive power.

However, the necessity of economizing energy has been demanding for many years the creation of some kind of apparatus in simple structure which is able to use light oil as fuel in gasoline internal combustion engines with a view to cutting down fuel expenses.

The present invention has been worked out in consideration of such circumstances.

According to the invention the apparatus for improving the quality of light oil comprises:
electrodes for generating a discharge plasma beam, said electrodes being provided opposite to one another at a prescribed distance;

a coil producing an electric field for stabilizing said plasma beam, said coil being wound up on the outer circumference of the apparatus body;
nozzles for supplying a mixture of hydrogen and light oil while making it pass through said plasma beam, said nozzles being provided piercingly near said electrodes of one side, and
an outlet port for taking-out the improved light oil, said outlet port being provided near the counter electrodes to said electrodes.

Description will now be directed to an example according to this invention with reference to the accompanying drawing.

In the drawing :
The drawing shows an explanatory view in section of an example of the present invention.

In the figure, the reference numeral 1 indicates electrodes for generating a discharge plasma beam. Out of these electrodes, at least the one poles of the electrodes on one side are formed by using monomolucular layers of nickel sulfide, while the counter electrodes to it constitute monomolecular layers of molybdenum sulfide. Incidentally, it is desirable in the present example that these electrodes 1 are set at a distance about 150 mm apart, but in the other examples the distance between electrodes may be optionally selected so as to display appropriately the effect of this invention on the respective occasions.

It is also advisable that the voltage to be applied between these electrodes would be of a. c. 15000 V.

Bases 2 wherein the electrodes are to be planted constitute 100 %-magnetic mirrors which is paneled with at least monomolecular layers consisting of lithium oxide.

The reference numeral 3 indicates a coil which is wounded up on the outer circumference of the apparatus in order to stabilize the discharge plasma beam. This oil forms a magnetic field wherein the magnetic pressure is applied to the plasma beam to prevent the dispersion therof.

The reference numeral 4 indicates a heating wire covered by a protecting tube consisting of insulating material such as a quarz glass tube 5. This wire is impressed and heated to contribute to the activation of light oil which is fed to the interior of the apparatus.

The reference numeral 6 indicates nozzles which supply a mixture of light oil and hydrogen beforehand compounded outside the apparatus, and which are made connected from a fuel feed route of light oil to an internal combustion engine (not shown).

Incidentally, although the light oil is imparted an ejecting pressure on account of being mixed together with hydrogen in this case, it is possible to apply some separate ejecting pressure thereto as occasion requires.

The reference numeral 7 indicates an outlet port of improved light oil. This outlet port 7 is connected to a fuel feed route to a carburator of the internal combustion engine (not shown).

The source used here is supplied from a storage battery of d. c., 12 V through the medium of a public-known converter.

The reference numeral 8 indicates a cover surrounding airtightly the apparatus body. For reasons of electric insulation and durability, it is commendable to make both the cover 8 and the body 9 out of synthetic resinous material, by way of example, such as acrylic resin tubes and the like.

In the apparatus for improving the quality of light oil which is constructed in such a configuration, the electrodes 1, the coil 3, and the heating wire 4 are impressed to generate the discharge plasma beam, while on the other hand the mixture of light fuel and hydrogen is discharged from the nozzles 6 into the interior of the apparatus. Then, the C-C bond in the constituent part of hydrogen is cut off by the atomic discharge, at the same time when the hydrogen is added to the above cut-off part, thereby the light oil being improved into a property worth of being supplied to any gasoline internal combustion engine.

Supposing the quantity of light oil supply would be limited to about 2 l per minute, the efficiency of improvement is best in the case of the discharging length being set at about 150 mm. In this occasion, the compounding rate of hydrogen in the mixture is to be about 2cc per minute.

It is needless to say that the amount of light oil supply, the quantity of hydrogen to be added, and the distance between electrodes may be changed in design at will while taking into consideration fittingly the kinds of gasoline internal combustion engines, the amount of supplied fuel and other circumstances.

As described in detail in the above, although the apparatus for improving the quality of light oil according to the present invention is the one having a very simple construction, it can be called an epoch-making invention which has the ability to improve the quality of light oil so as to be used in any gasoline internal combustion engine.

Claim:

An apparatus for improving the quality of light oil, characterized by
electrodes (1) for generating a discharge plasma beam, said electrodes (1) being provided opposite to one another at a prescribed distance;
a coil (3) producing an electric field for stabilizing said plasma beam, said coil (3) being wound up on the outer circumference of the apparatus body;
nozzles (6) for supplying a mixture of hydrogen and light oil while making it pass through said plasma beam, said nozzles (6) being provided piercingly near said electrodes (1) of one side; and
an outlet port (7) for taking-out the improved light oil, said outlet port (7) being provided near the counter electrodes (1) to said electrodes (1).

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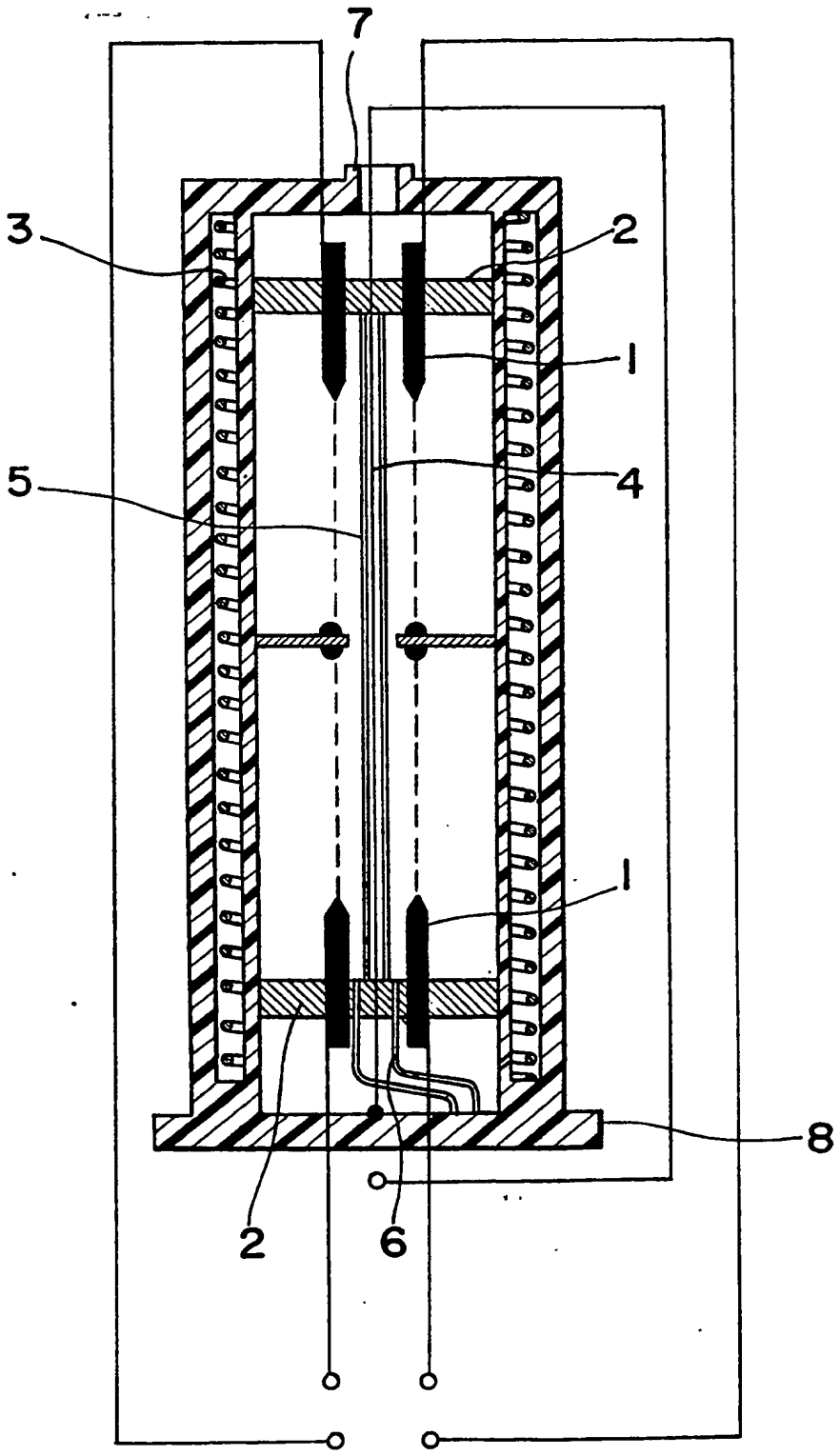
Fig. 1



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Application number

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EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	US - A - 1 927 074 (SULLIVAN) * page 1, lines 1-5, 99-105; page 2, lines 2-34, 65-91 *	sole claim
A	BE - A - 522 105 (BAGNULO) * page 2, lines 46-51; page 3, lines 1-13 *	sole claim
A	US - A - 4 095 974 (MATOVICH) * column 7, lines 13-18; column 10, line 18 *	sole claim
A	GB - A - 925 089 (UNION CARBIDE) * page 2, lines 3-18, 26-30; page 3, lines 12-40, 64-124; page 5, lines 87-101; claim 1 *	sole claim
A	DE - A- 2 639 807 (PILZ) * page 2, lines 1-8 and 19-28, 1st and last paragraph *	

CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)

C 10 G 15/12

TECHNICAL FIELDS SEARCHED (Int.Cl. 3)

C 10 G
F 02 M
F 02 B
F 23 C

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
Y: particularly relevant if combined with another document of the same category
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: earlier patent document, but published on, or after the filing date
D: document cited in the application
L: document cited for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	23-03-1982	JORIS